

Ministry of Education, Culture and Research of the Republic of Moldova

Technical University of Moldova

Department of Software and Automation Engineering

**REPORT**

Laboratory work No. 2

**Discipline**: Cryptography and Security

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Checked: asist. univ. Dumitru Nirca,

Chișinău 2023

## Topic: Mono-alphabetic Cipher

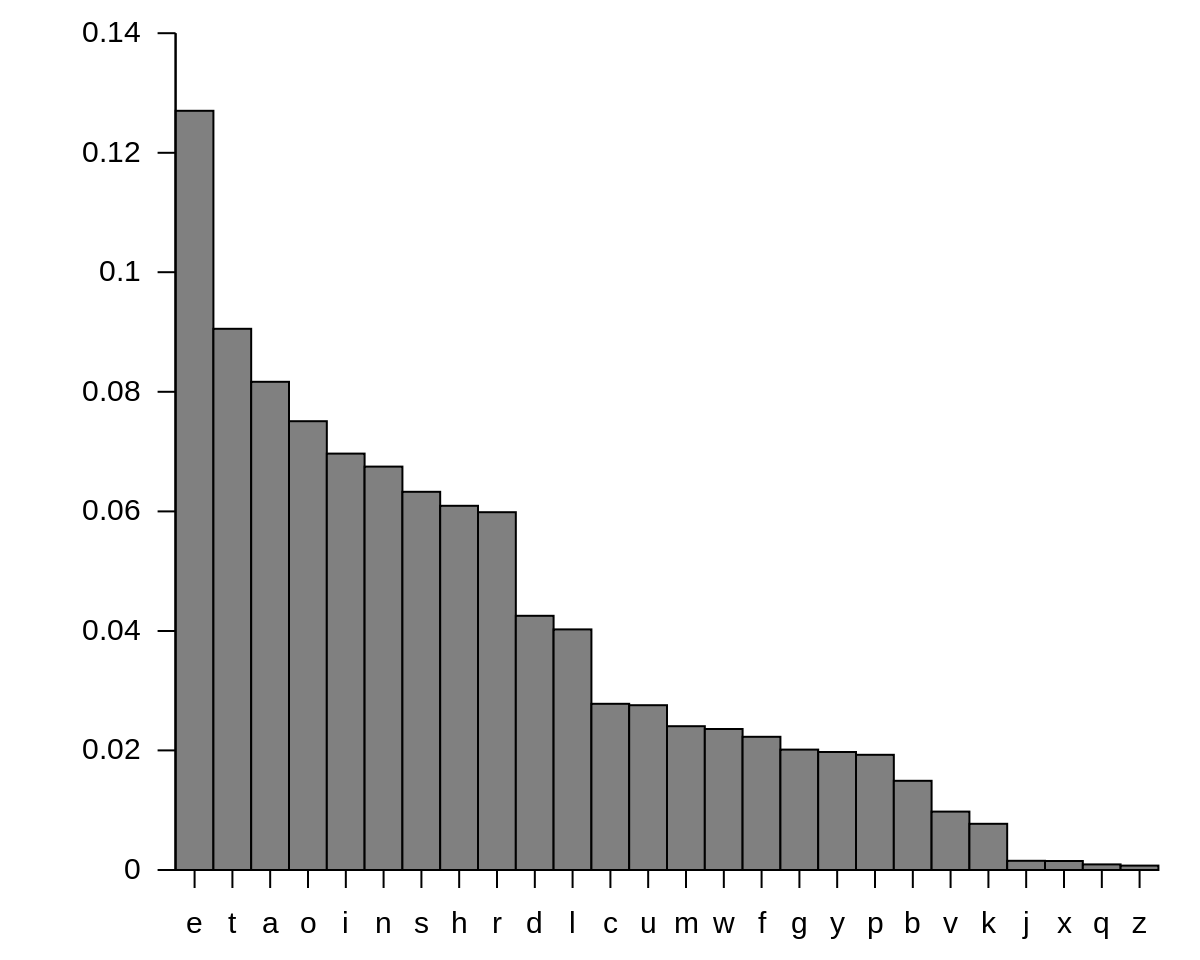
## Tasks:

1. An encrypted message was intercepted that is known to have been obtained using a mono-alphabetic cipher. Applying the frequency analysis attack to find out the original message, if it assumed to be a text written in English. Bear in mind that only letters, the other characters remain unencrypted.

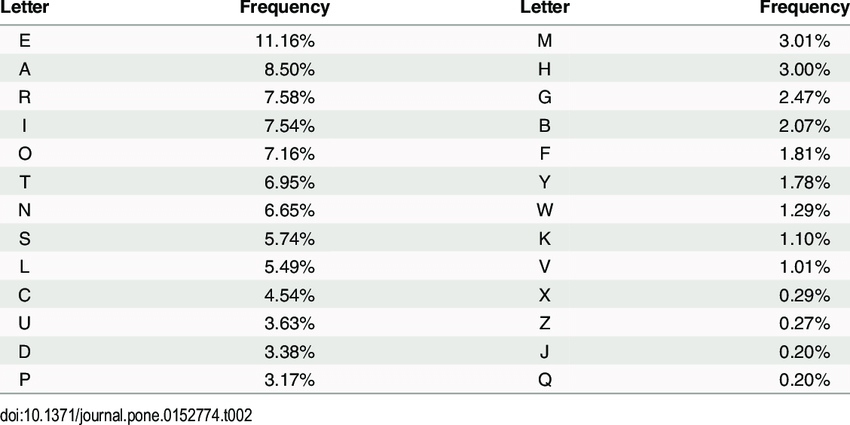
## Theoretical notes:

The vulnerability of mono-alphabetic encryption systems stems from their susceptibility to character frequency analysis. When dealing with a sufficiently lengthy encrypted text in a known language, attackers can exploit the inherent frequency patterns of letters within that language, a technique known as a frequency analysis attack. This frequency analysis is not only widely studied for cryptographic purposes but also in various other contexts.

Over time, researchers have developed distinct ordering structures to reflect the frequency of letter occurrences in multiple European and non-European languages. As a ciphertext length increases, it gradually converges towards this general frequency ordering.



**Fig.1**: English letter frequency



**Fig.2**: English letter frequency(Table)

**Implementation(Var. Nr.12)**

I have a cryptogram c = Xw itg rxwq tsznpw dgavsxvktasv vccxhxvghf. Wqv atjp nc ztxs cni ovsxkvifwqtw znigxgj wn wqv

vzatppxvp xg Kxvggt rviv aindjqw wn wqv asthlhqtzavi vthq otf tw 7 t.z. Wqviv wqv svwwvip rviv

nuvgvo af zvswxgjwqvxi pvtsp rxwq t htgosv. Wqv niovi nc wqv svwwvip xg tg vgkvsnuv rtpgnwvo

tgo wqv svwwvip jxkvg wn t pdaoxivhwni. Qv ivto wqvz tgo niovivowqv xzuniwtgw utiwp hnuxvo.

Tss wqv vzusnfvvp hndso rixwv ituxosf, tgopnzv lgvr pqniwqtgo. Sngj svwwvip rviv oxhwtwvo wn

ptkv wxzv,pnzvwxzvp dpxgj cndi pwvgnjituqvip wn t pxgjsv svwwvi. Xc t svwwvi rtp xg tstgjdtjv

wqtw qv oxo gnw lgnr, wqv pdaoxivhwni jtkv xw wn t htaxgvwvzusnfvv ctzxsxti rxwq xw. Wrn

witgpstwnip rviv tsrtfp ng qtgo. TssVdinuvtg stgjdtjvp hndso av ivto, tgo rqvg t gvr ngv rtp gvvovo,

tgnccxhxts svtigvo xw. Tizvgxtg, cni vytzusv, wnnl ngv htaxgvw unsfjsnw ngsft cvr zngwqp wn svtig,

tgo qv rtp utxo wqv dpdts 500 csnixgp cni qxp gvrlgnrsvojv. Tcwvi hnufxgj, wqv svwwvip rviv

ivusthvo xg wqvxi vgkvsnuvp xgwqvxi nixjxgts niovi tgo wqv vgkvsnuvp iv-pvtsvo, dpxgj cnijvo

pvtsp wnxzuivpp wqv nixjxgts rty. Wqv svwwvip rviv ivwdigvo wn wqv unpw nccxhv af9:30 t.z.Tw

10 t.z., wqv ztxs wqtw rtp utppxgj wqindjq wqxp hinppintop nc wqvhngwxgvgw tiixkvo tgo rtp

qtgosvo xg wqv ptzv rtf, wqndjq rxwq svppqdiif avhtdpv xw rtp xg witgpxw. Dpdtssf xw rndso av

athl xg wqv unpw af 2u.z., wqndjq pnzvwxzvp xw rtp lvuw tp stwv tp 7 u.z. Tw 11

t.z.,xgwvihvuwxngp ztov af wqv unsxhv cni udiunpvp nc unsxwxhts pdikvxsstghvtiixkvo. Tgo tw 4

u.z., wqv hndixvip aindjqw wqv svwwvip wqtw wqvvzatppxvp rviv pvgoxgj ndw wqtw otf. Wqvpv

rviv athl xg wqv pwivtz nchnzzdgxhtwxngp af 6:30 u.z. Hnuxvo ztwvixts rtp qtgovo wn wqvoxivhwni

nc wqv htaxgvw, rqn vyhviuwvo xgcniztwxng nc puvhxts xgwvivpw tgoindwvo xw wn wqv uinuvi

tjvghxvp, tp unsxhv, tizf, ni itxsrtftozxgxpwitwxng, tgo pvgw wqv ztpp nc oxusnztwxh ztwvixts wn

wqv hndiw. Tss wnso, wqv wvg-ztg htaxgvw qtgosvo tg tkvitjv ncavwrvvg 80 tgo 100 svwwvip t

otf.Tpwngxpqxgjsf, wqvxi gxzasv cxgjvip qtiosf vkvi pwdccvo svwwvip xgwn wqvringj uthlvw,

ovpuxwv wqv puvvo rxwq rqxhq wqvf rnilvo. Xg ngv nc wqvcvr ivhniovo asdgovip, tg xgwvihvuwvosvwwvi wn wqv Odlv nc Znovgt rtpviingvndpsf iv-pvtsvo rxwq wqv hsnpvsf pxzxsti pxjgvw nc Utizt.

Rqvg wqvodlv gnwxhvo wqv pdapwxwdwxng, qv pvgw xw wn Utizt rxwq wqv rif gnwv, "Gnwedpw

zv—fnd wnn." Anwq pwtwvp uinwvpwvo, adw wqv Kxvggvpv jivvwvo wqvzrxwq t astgl pwtiv, t

pqidj, tgo t astgo uincvppxng nc xjgnitghv. Ovpuxwvwqxp, wqv vyxpwvghv nc wqv asthl hqtzavi rtp

rvss lgnrg wn wqv ktixndpovsvjtwvp wn wqv Tdpwixtg hndiw, tgo rtp vkvg wthxwsf thlgnrsvojvo

afwqv Tdpwixtgp. Rqvg wqv Aixwxpq'tzatpptoni hnzustxgvo qdznindpsf wqtw qv rtp jvwwxgj

hnuxvpxgpwvto nc qxp nixjxgts hniivpungovghv, wqv hqtghvssni ivusxvo hnnssf,"Qnr hsdzpf wqvpv

uvnusv tiv!"Vghxuqvivo hniivpungovghv rtp pdaevhwvo wn wqv dpdts hifuwtgtsfwxhprvtwxgj

uinhvpp. Wqv Kxvggvpv vgenfvo ivztiltasv pdhhvpp xg wqxp rnil.Wqv Civghq tzatpptoni, rqn rtp

tuuixpvo nc xwp pdhhvppvp cinz utuvippnso qxz af t ztplvo ztg ng t aixojv, ivztilvo xg tpwngxpqzvgw

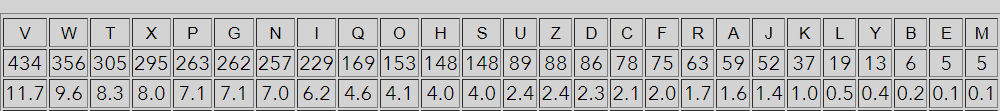
wqtw"ndi hxuqvip nc 1200 [jindup] qnso ndw ngsf t sxwwsv rqxsv tjtxgpw wqvtaxsxwf nc wqv

Tdpwixtg ovhxuqvivip." Qv toovo wqtw wqndjq qv pdjjvpwvogvr rtfp nc hxuqvixgj tgo hngwxgdts

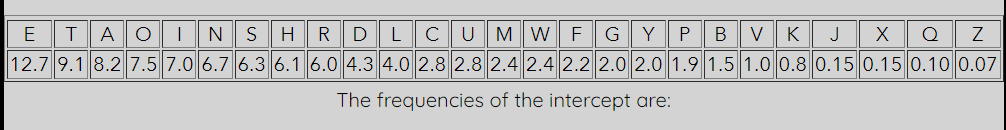
hqtgjvp nc hxuqvip, "X pwxss cxgozfpvsc rxwqndw pvhdiv zvtgp cni wqv pvhivwp X qtkv wn

witgpzxw wnHngpwtgwxgnusv, Pwnhlqnsz, tgo Pw. Uvwvipadij.

So first we look at the frequencies as shown bellow:

 **Fig.3**: Frequency of cryptogram letters(in my case)

And we also look at this table:



**Fig.4**: Frequency of cryptogram letters

Xw itg rxwq tsznpw dgavsxvktasv vccxhxvghf. Wqv atjp nc ztxs cni ovsxkvifwqtw znigxgj wn wqv

vzatppxvp xg Kxvggt rviv aindjqw wn wqv asthlhqtzavi vthq otf tw 7 t.z. Wqviv wqv svwwvip rviv

nuvgvo af zvswxgjwqvxi pvtsp rxwq t htgosv. Wqv niovi nc wqv svwwvip xg tg vgkvsnuv rtpgnwvo

tgo wqv svwwvip jxkvg wn t pdaoxivhwni. Qv ivto wqvz tgo niovivowqv xzuniwtgw utiwp hnuxvo.

Tss wqv vzusnfvvp hndso rixwv ituxosf, tgopnzv lgvr pqniwqtgo. Sngj svwwvip rviv oxhwtwvo wn

ptkv wxzv,pnzvwxzvp dpxgj cndi pwvgnjituqvip wn t pxgjsv svwwvi. Xc t svwwvi rtp xg tstgjdtjv

wqtw qv oxo gnw lgnr, wqv pdaoxivhwni jtkv xw wn t htaxgvwvzusnfvv ctzxsxti rxwq xw. Wrn

witgpstwnip rviv tsrtfp ng qtgo. TssVdinuvtg stgjdtjvp hndso av ivto, tgo rqvg t gvr ngv rtp gvvovo,

tgnccxhxts svtigvo xw. Tizvgxtg, cni vytzusv, wnnl ngv htaxgvw unsfjsnw ngsft cvr zngwqp wn svtig,

tgo qv rtp utxo wqv dpdts 500 csnixgp cni qxp gvrlgnrsvojv. Tcwvi hnufxgj, wqv svwwvip rviv

ivusthvo xg wqvxi vgkvsnuvp xgwqvxi nixjxgts niovi tgo wqv vgkvsnuvp iv-pvtsvo, dpxgj cnijvo

pvtsp wnxzuivpp wqv nixjxgts rty. Wqv svwwvip rviv ivwdigvo wn wqv unpw nccxhv af9:30 t.z.Tw

10 t.z., wqv ztxs wqtw rtp utppxgj wqindjq wqxp hinppintop nc wqvhngwxgvgw tiixkvo tgo rtp

qtgosvo xg wqv ptzv rtf, wqndjq rxwq svppqdiif avhtdpv xw rtp xg witgpxw. Dpdtssf xw rndso av

athl xg wqv unpw af 2u.z., wqndjq pnzvwxzvp xw rtp lvuw tp stwv tp 7 u.z. Tw 11

t.z.,xgwvihvuwxngp ztov af wqv unsxhv cni udiunpvp nc unsxwxhts pdikvxsstghvtiixkvo. Tgo tw 4

u.z., wqv hndixvip aindjqw wqv svwwvip wqtw wqvvzatppxvp rviv pvgoxgj ndw wqtw otf. Wqvpv

rviv athl xg wqv pwivtz nchnzzdgxhtwxngp af 6:30 u.z. Hnuxvo ztwvixts rtp qtgovo wn wqvoxivhwni

nc wqv htaxgvw, rqn vyhviuwvo xgcniztwxng nc puvhxts xgwvivpw tgoindwvo xw wn wqv uinuvi

tjvghxvp, tp unsxhv, tizf, ni itxsrtftozxgxpwitwxng, tgo pvgw wqv ztpp nc oxusnztwxh ztwvixts wn

wqv hndiw. Tss wnso, wqv wvg-ztg htaxgvw qtgosvo tg tkvitjv ncavwrvvg 80 tgo 100 svwwvip t

otf.Tpwngxpqxgjsf, wqvxi gxzasv cxgjvip qtiosf vkvi pwdccvo svwwvip xgwn wqvringj uthlvw,

ovpuxwv wqv puvvo rxwq rqxhq wqvf rnilvo. Xg ngv nc wqvcvr ivhniovo asdgovip, tg xgwvihvuwvo

svwwvi wn wqv Odlv nc Znovgt rtpviingvndpsf iv-pvtsvo rxwq wqv hsnpvsf pxzxsti pxjgvw nc Utizt.

Rqvg wqvodlv gnwxhvo wqv pdapwxwdwxng, qv pvgw xw wn Utizt rxwq wqv rif gnwv, "Gnwedpw

zv—fnd wnn." Anwq pwtwvp uinwvpwvo, adw wqv Kxvggvpv jivvwvo wqvzrxwq t astgl pwtiv, t

pqidj, tgo t astgo uincvppxng nc xjgnitghv. Ovpuxwvwqxp, wqv vyxpwvghv nc wqv asthl hqtzavi rtp

rvss lgnrg wn wqv ktixndpovsvjtwvp wn wqv Tdpwixtg hndiw, tgo rtp vkvg wthxwsf thlgnrsvojvo

afwqv Tdpwixtgp. Rqvg wqv Aixwxpq'tzatpptoni hnzustxgvo qdznindpsf wqtw qv rtp jvwwxgj

hnuxvpxgpwvto nc qxp nixjxgts hniivpungovghv, wqv hqtghvssni ivusxvo hnnssf,"Qnr hsdzpf wqvpv

uvnusv tiv!"Vghxuqvivo hniivpungovghv rtp pdaevhwvo wn wqv dpdts hifuwtgtsfwxhprvtwxgj

uinhvpp. Wqv Kxvggvpv vgenfvo ivztiltasv pdhhvpp xg wqxp rnil.Wqv Civghq tzatpptoni, rqn rtp

tuuixpvo nc xwp pdhhvppvp cinz utuvippnso qxz af t ztplvo ztg ng t aixojv, ivztilvo xg tpwngxpqzvgw

wqtw"ndi hxuqvip nc 1200 [jindup] qnso ndw ngsf t sxwwsv rqxsv tjtxgpw wqvtaxsxwf nc wqv

Tdpwixtg ovhxuqvivip." Qv toovo wqtw wqndjq qv pdjjvpwvogvr rtfp nc hxuqvixgj tgo hngwxgdts

hqtgjvp nc hxuqvip, "X pwxss cxgozfpvsc rxwqndw pvhdiv zvtgp cni wqv pvhivwp X qtkv wn

witgpzxw wnHngpwtgwxgnusv, Pwnhlqnsz, tgo Pw. Uvwvipadij."

\* => v=e

\* => w=t

\* => t=a

\*

Xt IaG RXtQ aSZNPt DGAeSXeKaASe eCCXHXeGHF. tQe AaJP NC ZaXS CNI OeSXKeIFtQat ZNIGXGJ tN tQe

eZAaPPXeP XG KXeGGa ReIe AINDJQt tN tQe ASaHLHQaZAeI eaHQ OaF at 7 a.Z. tQeIe tQe SetteIP ReIe

NUeGeO AF ZeStXGJtQeXI PeaSP RXtQ a HaGOSe. tQe NIOeI NC tQe SetteIP XG aG eGKeSNUe RaPGNteO

aGO tQe SetteIP JXKeG tN a PDAOXIeHtNI. Qe IeaO tQeZ aGO NIOeIeOtQe XZUNItaGt UaItP HNUXeO.

aSS tQe eZUSNFeeP HNDSO RIXte IaUXOSF, aGOPNZe LGeR PQNItQaGO. SNGJ SetteIP ReIe OXHtateO tN

PaKe tXZe,PNZetXZeP DPXGJ CNDI PteGNJIaUQeIP tN a PXGJSe SetteI. XC a SetteI RaP XG aSaGJDaJe

tQat Qe OXO GNt LGNR, tQe PDAOXIeHtNI JaKe Xt tN a HaAXGeteZUSNFee CaZXSXaI RXtQ Xt. tRN

tIaGPSatNIP ReIe aSRaFP NG QaGO. aSSeDINUeaG SaGJDaJeP HNDSO Ae IeaO, aGO RQeG a GeR NGe RaP GeeOeO,

aGNCCXHXaS SeaIGeO Xt. aIZeGXaG, CNI eYaZUSe, tNNL NGe HaAXGet UNSFJSNt NGSFa CeR ZNGtQP tN SeaIG,

aGO Qe RaP UaXO tQe DPDaS 500 CSNIXGP CNI QXP GeRLGNRSeOJe. aCteI HNUFXGJ, tQe SetteIP ReIe

IeUSaHeO XG tQeXI eGKeSNUeP XGtQeXI NIXJXGaS NIOeI aGO tQe eGKeSNUeP Ie-PeaSeO, DPXGJ CNIJeO

PeaSP tNXZUIePP tQe NIXJXGaS RaY. tQe SetteIP ReIe IetDIGeO tN tQe UNPt NCCXHe AF9:30 a.Z.at

10 a.Z., tQe ZaXS tQat RaP UaPPXGJ tQINDJQ tQXP HINPPINaOP NC tQeHNGtXGeGt aIIXKeO aGO RaP

QaGOSeO XG tQe PaZe RaF, tQNDJQ RXtQ SePPQDIIF AeHaDPe Xt RaP XG tIaGPXt. DPDaSSF Xt RNDSO Ae

AaHL XG tQe UNPt AF 2U.Z., tQNDJQ PNZetXZeP Xt RaP LeUt aP Sate aP 7 U.Z. at 11

a.Z.,XGteIHeUtXNGP ZaOe AF tQe UNSXHe CNI UDIUNPeP NC UNSXtXHaS PDIKeXSSaGHeaIIXKeO. aGO at 4

U.Z., tQe HNDIXeIP AINDJQt tQe SetteIP tQat tQeeZAaPPXeP ReIe PeGOXGJ NDt tQat OaF. tQePe

ReIe AaHL XG tQe PtIeaZ NCHNZZDGXHatXNGP AF 6:30 U.Z. HNUXeO ZateIXaS RaP QaGOeO tN tQeOXIeHtNI

NC tQe HaAXGet, RQN eYHeIUteO XGCNIZatXNG NC PUeHXaS XGteIePt aGOINDteO Xt tN tQe UINUeI

aJeGHXeP, aP UNSXHe, aIZF, NI IaXSRaFaOZXGXPtIatXNG, aGO PeGt tQe ZaPP NC OXUSNZatXH ZateIXaS tN

tQe HNDIt. aSS tNSO, tQe teG-ZaG HaAXGet QaGOSeO aG aKeIaJe NCAetReeG 80 aGO 100 SetteIP a

OaF.aPtNGXPQXGJSF, tQeXI GXZASe CXGJeIP QaIOSF eKeI PtDCCeO SetteIP XGtN tQeRINGJ UaHLet,

OePUXte tQe PUeeO RXtQ RQXHQ tQeF RNILeO. XG NGe NC tQeCeR IeHNIOeO ASDGOeIP, aG XGteIHeUteO

SetteI tN tQe ODLe NC ZNOeGa RaPeIINGeNDPSF Ie-PeaSeO RXtQ tQe HSNPeSF PXZXSaI PXJGet NC UaIZa.

RQeG tQeODLe GNtXHeO tQe PDAPtXtDtXNG, Qe PeGt Xt tN UaIZa RXtQ tQe RIF GNte, "GNtEDPt

Ze—FND tNN." ANtQ PtateP UINtePteO, ADt tQe KXeGGePe JIeeteO tQeZRXtQ a ASaGL PtaIe, a

PQIDJ, aGO a ASaGO UINCePPXNG NC XJGNIaGHe. OePUXtetQXP, tQe eYXPteGHe NC tQe ASaHL HQaZAeI RaP

ReSS LGNRG tN tQe KaIXNDPOeSeJateP tN tQe aDPtIXaG HNDIt, aGO RaP eKeG taHXtSF aHLGNRSeOJeO

AFtQe aDPtIXaGP. RQeG tQe AIXtXPQ'aZAaPPaONI HNZUSaXGeO QDZNINDPSF tQat Qe RaP JettXGJ

HNUXePXGPteaO NC QXP NIXJXGaS HNIIePUNGOeGHe, tQe HQaGHeSSNI IeUSXeO HNNSSF,"QNR HSDZPF tQePe

UeNUSe aIe!"eGHXUQeIeO HNIIePUNGOeGHe RaP PDAEeHteO tN tQe DPDaS HIFUtaGaSFtXHPReatXGJ

UINHePP. tQe KXeGGePe eGENFeO IeZaILaASe PDHHePP XG tQXP RNIL.tQe CIeGHQ aZAaPPaONI, RQN RaP

aUUIXPeO NC XtP PDHHePPeP CINZ UaUeIPPNSO QXZ AF a ZaPLeO ZaG NG a AIXOJe, IeZaILeO XG aPtNGXPQZeGt

tQat"NDI HXUQeIP NC 1200 [JINDUP] QNSO NDt NGSF a SXttSe RQXSe aJaXGPt tQeaAXSXtF NC tQe

aDPtIXaG OeHXUQeIeIP." Qe aOOeO tQat tQNDJQ Qe PDJJePteOGeR RaFP NC HXUQeIXGJ aGO HNGtXGDaS

HQaGJeP NC HXUQeIP, "X PtXSS CXGOZFPeSC RXtQNDt PeHDIe ZeaGP CNI tQe PeHIetP X QaKe tN

tIaGPZXt tNHNGPtaGtXGNUSe, PtNHLQNSZ, aGO Pt. UeteIPADIJ.

\* => 7 U.Z. at 11 a.Z. = 7 p.m at 11 a.m

Xt IaG RXtQ aSmNPt DGAeSXeKaASe eCCXHXeGHF. tQe AaJP NC maXS CNI OeSXKeIFtQat mNIGXGJ tN tQe

emAaPPXeP XG KXeGGa ReIe AINDJQt tN tQe ASaHLHQamAeI eaHQ OaF at 7 a.m. tQeIe tQe SetteIP ReIe

NpeGeO AF meStXGJtQeXI PeaSP RXtQ a HaGOSe. tQe NIOeI NC tQe SetteIP XG aG eGKeSNpe RaPGNteO

aGO tQe SetteIP JXKeG tN a PDAOXIeHtNI. Qe IeaO tQem aGO NIOeIeOtQe XmpNItaGt paItP HNpXeO.

aSS tQe empSNFeeP HNDSO RIXte IapXOSF, aGOPNme LGeR PQNItQaGO. SNGJ SetteIP ReIe OXHtateO tN

PaKe tXme,PNmetXmeP DPXGJ CNDI PteGNJIapQeIP tN a PXGJSe SetteI. XC a SetteI RaP XG aSaGJDaJe

tQat Qe OXO GNt LGNR, tQe PDAOXIeHtNI JaKe Xt tN a HaAXGetempSNFee CamXSXaI RXtQ Xt. tRN

tIaGPSatNIP ReIe aSRaFP NG QaGO. aSSeDINpeaG SaGJDaJeP HNDSO Ae IeaO, aGO RQeG a GeR NGe RaP GeeOeO,

aGNCCXHXaS SeaIGeO Xt. aImeGXaG, CNI eYampSe, tNNL NGe HaAXGet pNSFJSNt NGSFa CeR mNGtQP tN SeaIG,

aGO Qe RaP paXO tQe DPDaS 500 CSNIXGP CNI QXP GeRLGNRSeOJe. aCteI HNpFXGJ, tQe SetteIP ReIe

IepSaHeO XG tQeXI eGKeSNpeP XGtQeXI NIXJXGaS NIOeI aGO tQe eGKeSNpeP Ie-PeaSeO, DPXGJ CNIJeO

PeaSP tNXmpIePP tQe NIXJXGaS RaY. tQe SetteIP ReIe IetDIGeO tN tQe pNPt NCCXHe AF9:30 a.m.at

10 a.m., tQe maXS tQat RaP paPPXGJ tQINDJQ tQXP HINPPINaOP NC tQeHNGtXGeGt aIIXKeO aGO RaP

QaGOSeO XG tQe Pame RaF, tQNDJQ RXtQ SePPQDIIF AeHaDPe Xt RaP XG tIaGPXt. DPDaSSF Xt RNDSO Ae

AaHL XG tQe pNPt AF 2p.m., tQNDJQ PNmetXmeP Xt RaP Lept aP Sate aP 7 p.m. at 11

a.m.,XGteIHeptXNGP maOe AF tQe pNSXHe CNI pDIpNPeP NC pNSXtXHaS PDIKeXSSaGHeaIIXKeO. aGO at 4

p.m., tQe HNDIXeIP AINDJQt tQe SetteIP tQat tQeemAaPPXeP ReIe PeGOXGJ NDt tQat OaF. tQePe

ReIe AaHL XG tQe PtIeam NCHNmmDGXHatXNGP AF 6:30 p.m. HNpXeO mateIXaS RaP QaGOeO tN tQeOXIeHtNI

NC tQe HaAXGet, RQN eYHeIpteO XGCNImatXNG NC PpeHXaS XGteIePt aGOINDteO Xt tN tQe pINpeI

aJeGHXeP, aP pNSXHe, aImF, NI IaXSRaFaOmXGXPtIatXNG, aGO PeGt tQe maPP NC OXpSNmatXH mateIXaS tN

tQe HNDIt. aSS tNSO, tQe teG-maG HaAXGet QaGOSeO aG aKeIaJe NCAetReeG 80 aGO 100 SetteIP a

OaF.aPtNGXPQXGJSF, tQeXI GXmASe CXGJeIP QaIOSF eKeI PtDCCeO SetteIP XGtN tQeRINGJ paHLet,

OePpXte tQe PpeeO RXtQ RQXHQ tQeF RNILeO. XG NGe NC tQeCeR IeHNIOeO ASDGOeIP, aG XGteIHepteO

SetteI tN tQe ODLe NC mNOeGa RaPeIINGeNDPSF Ie-PeaSeO RXtQ tQe HSNPeSF PXmXSaI PXJGet NC paIma.

RQeG tQeODLe GNtXHeO tQe PDAPtXtDtXNG, Qe PeGt Xt tN paIma RXtQ tQe RIF GNte, "GNtEDPt

me—FND tNN." ANtQ PtateP pINtePteO, ADt tQe KXeGGePe JIeeteO tQemRXtQ a ASaGL PtaIe, a

PQIDJ, aGO a ASaGO pINCePPXNG NC XJGNIaGHe. OePpXtetQXP, tQe eYXPteGHe NC tQe ASaHL HQamAeI RaP

ReSS LGNRG tN tQe KaIXNDPOeSeJateP tN tQe aDPtIXaG HNDIt, aGO RaP eKeG taHXtSF aHLGNRSeOJeO

AFtQe aDPtIXaGP. RQeG tQe AIXtXPQ'amAaPPaONI HNmpSaXGeO QDmNINDPSF tQat Qe RaP JettXGJ

HNpXePXGPteaO NC QXP NIXJXGaS HNIIePpNGOeGHe, tQe HQaGHeSSNI IepSXeO HNNSSF,"QNR HSDmPF tQePe

peNpSe aIe!"eGHXpQeIeO HNIIePpNGOeGHe RaP PDAEeHteO tN tQe DPDaS HIFptaGaSFtXHPReatXGJ

pINHePP. tQe KXeGGePe eGENFeO IemaILaASe PDHHePP XG tQXP RNIL.tQe CIeGHQ amAaPPaONI, RQN RaP

appIXPeO NC XtP PDHHePPeP CINm papeIPPNSO QXm AF a maPLeO maG NG a AIXOJe, IemaILeO XG aPtNGXPQmeGt

tQat"NDI HXpQeIP NC 1200 [JINDpP] QNSO NDt NGSF a SXttSe RQXSe aJaXGPt tQeaAXSXtF NC tQe

aDPtIXaG OeHXpQeIeIP." Qe aOOeO tQat tQNDJQ Qe PDJJePteOGeR RaFP NC HXpQeIXGJ aGO HNGtXGDaS

HQaGJeP NC HXpQeIP, "X PtXSS CXGOmFPeSC RXtQNDt PeHDIe meaGP CNI tQe PeHIetP X QaKe tN

tIaGPmXt tNHNGPtaGtXGNpSe, PtNHLQNSm, aGO Pt. peteIPADIJ.

\* => WQV = the

\* => tQe = the

Xt IaG RXth aSmNPt DGAeSXeKaASe eCCXHXeGHF. the AaJP NC maXS CNI OeSXKeIFthat mNIGXGJ tN the

emAaPPXeP XG KXeGGa ReIe AINDJht tN the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP ReIe

NpeGeO AF meStXGJtheXI PeaSP RXth a HaGOSe. the NIOeI NC the SetteIP XG aG eGKeSNpe RaPGNteO

aGO the SetteIP JXKeG tN a PDAOXIeHtNI. he IeaO them aGO NIOeIeOthe XmpNItaGt paItP HNpXeO.

aSS the empSNFeeP HNDSO RIXte IapXOSF, aGOPNme LGeR PhNIthaGO. SNGJ SetteIP ReIe OXHtateO tN

PaKe tXme,PNmetXmeP DPXGJ CNDI PteGNJIapheIP tN a PXGJSe SetteI. XC a SetteI RaP XG aSaGJDaJe

that he OXO GNt LGNR, the PDAOXIeHtNI JaKe Xt tN a HaAXGetempSNFee CamXSXaI RXth Xt. tRN

tIaGPSatNIP ReIe aSRaFP NG haGO. aSSeDINpeaG SaGJDaJeP HNDSO Ae IeaO, aGO RheG a GeR NGe RaP GeeOeO,

aGNCCXHXaS SeaIGeO Xt. aImeGXaG, CNI eYampSe, tNNL NGe HaAXGet pNSFJSNt NGSFa CeR mNGthP tN SeaIG,

aGO he RaP paXO the DPDaS 500 CSNIXGP CNI hXP GeRLGNRSeOJe. aCteI HNpFXGJ, the SetteIP ReIe

IepSaHeO XG theXI eGKeSNpeP XGtheXI NIXJXGaS NIOeI aGO the eGKeSNpeP Ie-PeaSeO, DPXGJ CNIJeO

PeaSP tNXmpIePP the NIXJXGaS RaY. the SetteIP ReIe IetDIGeO tN the pNPt NCCXHe AF9:30 a.m.at

10 a.m., the maXS that RaP paPPXGJ thINDJh thXP HINPPINaOP NC theHNGtXGeGt aIIXKeO aGO RaP

haGOSeO XG the Pame RaF, thNDJh RXth SePPhDIIF AeHaDPe Xt RaP XG tIaGPXt. DPDaSSF Xt RNDSO Ae

AaHL XG the pNPt AF 2p.m., thNDJh PNmetXmeP Xt RaP Lept aP Sate aP 7 p.m. at 11

a.m.,XGteIHeptXNGP maOe AF the pNSXHe CNI pDIpNPeP NC pNSXtXHaS PDIKeXSSaGHeaIIXKeO. aGO at 4

p.m., the HNDIXeIP AINDJht the SetteIP that theemAaPPXeP ReIe PeGOXGJ NDt that OaF. thePe

ReIe AaHL XG the PtIeam NCHNmmDGXHatXNGP AF 6:30 p.m. HNpXeO mateIXaS RaP haGOeO tN theOXIeHtNI

NC the HaAXGet, RhN eYHeIpteO XGCNImatXNG NC PpeHXaS XGteIePt aGOINDteO Xt tN the pINpeI

aJeGHXeP, aP pNSXHe, aImF, NI IaXSRaFaOmXGXPtIatXNG, aGO PeGt the maPP NC OXpSNmatXH mateIXaS tN

the HNDIt. aSS tNSO, the teG-maG HaAXGet haGOSeO aG aKeIaJe NCAetReeG 80 aGO 100 SetteIP a

OaF.aPtNGXPhXGJSF, theXI GXmASe CXGJeIP haIOSF eKeI PtDCCeO SetteIP XGtN theRINGJ paHLet,

OePpXte the PpeeO RXth RhXHh theF RNILeO. XG NGe NC theCeR IeHNIOeO ASDGOeIP, aG XGteIHepteO

SetteI tN the ODLe NC mNOeGa RaPeIINGeNDPSF Ie-PeaSeO RXth the HSNPeSF PXmXSaI PXJGet NC paIma.

RheG theODLe GNtXHeO the PDAPtXtDtXNG, he PeGt Xt tN paIma RXth the RIF GNte, "GNtEDPt

me—FND tNN." ANth PtateP pINtePteO, ADt the KXeGGePe JIeeteO themRXth a ASaGL PtaIe, a

PhIDJ, aGO a ASaGO pINCePPXNG NC XJGNIaGHe. OePpXtethXP, the eYXPteGHe NC the ASaHL HhamAeI RaP

ReSS LGNRG tN the KaIXNDPOeSeJateP tN the aDPtIXaG HNDIt, aGO RaP eKeG taHXtSF aHLGNRSeOJeO

AFthe aDPtIXaGP. RheG the AIXtXPh'amAaPPaONI HNmpSaXGeO hDmNINDPSF that he RaP JettXGJ

HNpXePXGPteaO NC hXP NIXJXGaS HNIIePpNGOeGHe, the HhaGHeSSNI IepSXeO HNNSSF,"hNR HSDmPF thePe

peNpSe aIe!"eGHXpheIeO HNIIePpNGOeGHe RaP PDAEeHteO tN the DPDaS HIFptaGaSFtXHPReatXGJ

pINHePP. the KXeGGePe eGENFeO IemaILaASe PDHHePP XG thXP RNIL.the CIeGHh amAaPPaONI, RhN RaP

appIXPeO NC XtP PDHHePPeP CINm papeIPPNSO hXm AF a maPLeO maG NG a AIXOJe, IemaILeO XG aPtNGXPhmeGt

that"NDI HXpheIP NC 1200 [JINDpP] hNSO NDt NGSF a SXttSe RhXSe aJaXGPt theaAXSXtF NC the

aDPtIXaG OeHXpheIeIP." he aOOeO that thNDJh he PDJJePteOGeR RaFP NC HXpheIXGJ aGO HNGtXGDaS

HhaGJeP NC HXpheIP, "X PtXSS CXGOmFPeSC RXthNDt PeHDIe meaGP CNI the PeHIetP X haKe tN

tIaGPmXt tNHNGPtaGtXGNpSe, PtNHLhNSm, aGO Pt. peteIPADIJ."

\* => tNN=too

\* => tN the = to the

Xt IaG RXth aSmoPt DGAeSXeKaASe eCCXHXeGHF. the AaJP oC maXS CoI OeSXKeIFthat moIGXGJ to the

emAaPPXeP XG KXeGGa ReIe AIoDJht to the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP ReIe

opeGeO AF meStXGJtheXI PeaSP RXth a HaGOSe. the oIOeI oC the SetteIP XG aG eGKeSope RaPGoteO

aGO the SetteIP JXKeG to a PDAOXIeHtoI. he IeaO them aGO oIOeIeOthe XmpoItaGt paItP HopXeO.

aSS the empSoFeeP HoDSO RIXte IapXOSF, aGOPome LGeR PhoIthaGO. SoGJ SetteIP ReIe OXHtateO to

PaKe tXme,PometXmeP DPXGJ CoDI PteGoJIapheIP to a PXGJSe SetteI. XC a SetteI RaP XG aSaGJDaJe

that he OXO Got LGoR, the PDAOXIeHtoI JaKe Xt to a HaAXGetempSoFee CamXSXaI RXth Xt. tRo

tIaGPSatoIP ReIe aSRaFP oG haGO. aSSeDIopeaG SaGJDaJeP HoDSO Ae IeaO, aGO RheG a GeR oGe RaP GeeOeO,

aGoCCXHXaS SeaIGeO Xt. aImeGXaG, CoI eYampSe, tooL oGe HaAXGet poSFJSot oGSFa CeR moGthP to SeaIG,

aGO he RaP paXO the DPDaS 500 CSoIXGP CoI hXP GeRLGoRSeOJe. aCteI HopFXGJ, the SetteIP ReIe

IepSaHeO XG theXI eGKeSopeP XGtheXI oIXJXGaS oIOeI aGO the eGKeSopeP Ie-PeaSeO, DPXGJ CoIJeO

PeaSP toXmpIePP the oIXJXGaS RaY. the SetteIP ReIe IetDIGeO to the poPt oCCXHe AF9:30 a.m.at

10 a.m., the maXS that RaP paPPXGJ thIoDJh thXP HIoPPIoaOP oC theHoGtXGeGt aIIXKeO aGO RaP

haGOSeO XG the Pame RaF, thoDJh RXth SePPhDIIF AeHaDPe Xt RaP XG tIaGPXt. DPDaSSF Xt RoDSO Ae

AaHL XG the poPt AF 2p.m., thoDJh PometXmeP Xt RaP Lept aP Sate aP 7 p.m. at 11

a.m.,XGteIHeptXoGP maOe AF the poSXHe CoI pDIpoPeP oC poSXtXHaS PDIKeXSSaGHeaIIXKeO. aGO at 4

p.m., the HoDIXeIP AIoDJht the SetteIP that theemAaPPXeP ReIe PeGOXGJ oDt that OaF. thePe

ReIe AaHL XG the PtIeam oCHommDGXHatXoGP AF 6:30 p.m. HopXeO mateIXaS RaP haGOeO to theOXIeHtoI

oC the HaAXGet, Rho eYHeIpteO XGCoImatXoG oC PpeHXaS XGteIePt aGOIoDteO Xt to the pIopeI

aJeGHXeP, aP poSXHe, aImF, oI IaXSRaFaOmXGXPtIatXoG, aGO PeGt the maPP oC OXpSomatXH mateIXaS to

the HoDIt. aSS toSO, the teG-maG HaAXGet haGOSeO aG aKeIaJe oCAetReeG 80 aGO 100 SetteIP a

OaF.aPtoGXPhXGJSF, theXI GXmASe CXGJeIP haIOSF eKeI PtDCCeO SetteIP XGto theRIoGJ paHLet,

OePpXte the PpeeO RXth RhXHh theF RoILeO. XG oGe oC theCeR IeHoIOeO ASDGOeIP, aG XGteIHepteO

SetteI to the ODLe oC moOeGa RaPeIIoGeoDPSF Ie-PeaSeO RXth the HSoPeSF PXmXSaI PXJGet oC paIma.

RheG theODLe GotXHeO the PDAPtXtDtXoG, he PeGt Xt to paIma RXth the RIF Gote, "GotEDPt

me—FoD too." Aoth PtateP pIotePteO, ADt the KXeGGePe JIeeteO themRXth a ASaGL PtaIe, a

PhIDJ, aGO a ASaGO pIoCePPXoG oC XJGoIaGHe. OePpXtethXP, the eYXPteGHe oC the ASaHL HhamAeI RaP

ReSS LGoRG to the KaIXoDPOeSeJateP to the aDPtIXaG HoDIt, aGO RaP eKeG taHXtSF aHLGoRSeOJeO

AFthe aDPtIXaGP. RheG the AIXtXPh'amAaPPaOoI HompSaXGeO hDmoIoDPSF that he RaP JettXGJ

HopXePXGPteaO oC hXP oIXJXGaS HoIIePpoGOeGHe, the HhaGHeSSoI IepSXeO HooSSF,"hoR HSDmPF thePe

peopSe aIe!"eGHXpheIeO HoIIePpoGOeGHe RaP PDAEeHteO to the DPDaS HIFptaGaSFtXHPReatXGJ

pIoHePP. the KXeGGePe eGEoFeO IemaILaASe PDHHePP XG thXP RoIL.the CIeGHh amAaPPaOoI, Rho RaP

appIXPeO oC XtP PDHHePPeP CIom papeIPPoSO hXm AF a maPLeO maG oG a AIXOJe, IemaILeO XG aPtoGXPhmeGt

that"oDI HXpheIP oC 1200 [JIoDpP] hoSO oDt oGSF a SXttSe RhXSe aJaXGPt theaAXSXtF oC the

aDPtIXaG OeHXpheIeIP." he aOOeO that thoDJh he PDJJePteOGeR RaFP oC HXpheIXGJ aGO HoGtXGDaS

HhaGJeP oC HXpheIP, "X PtXSS CXGOmFPeSC RXthoDt PeHDIe meaGP CoI the PeHIetP X haKe to

tIaGPmXt toHoGPtaGtXGopSe, PtoHLhoSm, aGO Pt. peteIPADIJ.

\* => oC = of

\* => because it is used often

Xt IaG RXth aSmoPt DGAeSXeKaASe effXHXeGHF. the AaJP of maXS foI OeSXKeIFthat moIGXGJ to the

emAaPPXeP XG KXeGGa ReIe AIoDJht to the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP ReIe

opeGeO AF meStXGJtheXI PeaSP RXth a HaGOSe. the oIOeI of the SetteIP XG aG eGKeSope RaPGoteO

aGO the SetteIP JXKeG to a PDAOXIeHtoI. he IeaO them aGO oIOeIeOthe XmpoItaGt paItP HopXeO.

aSS the empSoFeeP HoDSO RIXte IapXOSF, aGOPome LGeR PhoIthaGO. SoGJ SetteIP ReIe OXHtateO to

PaKe tXme,PometXmeP DPXGJ foDI PteGoJIapheIP to a PXGJSe SetteI. Xf a SetteI RaP XG aSaGJDaJe

that he OXO Got LGoR, the PDAOXIeHtoI JaKe Xt to a HaAXGetempSoFee famXSXaI RXth Xt. tRo

tIaGPSatoIP ReIe aSRaFP oG haGO. aSSeDIopeaG SaGJDaJeP HoDSO Ae IeaO, aGO RheG a GeR oGe RaP GeeOeO,

aGoffXHXaS SeaIGeO Xt. aImeGXaG, foI eYampSe, tooL oGe HaAXGet poSFJSot oGSFa feR moGthP to SeaIG,

aGO he RaP paXO the DPDaS 500 fSoIXGP foI hXP GeRLGoRSeOJe. afteI HopFXGJ, the SetteIP ReIe

IepSaHeO XG theXI eGKeSopeP XGtheXI oIXJXGaS oIOeI aGO the eGKeSopeP Ie-PeaSeO, DPXGJ foIJeO

PeaSP toXmpIePP the oIXJXGaS RaY. the SetteIP ReIe IetDIGeO to the poPt offXHe AF9:30 a.m.at

10 a.m., the maXS that RaP paPPXGJ thIoDJh thXP HIoPPIoaOP of theHoGtXGeGt aIIXKeO aGO RaP

haGOSeO XG the Pame RaF, thoDJh RXth SePPhDIIF AeHaDPe Xt RaP XG tIaGPXt. DPDaSSF Xt RoDSO Ae

AaHL XG the poPt AF 2p.m., thoDJh PometXmeP Xt RaP Lept aP Sate aP 7 p.m. at 11

a.m.,XGteIHeptXoGP maOe AF the poSXHe foI pDIpoPeP of poSXtXHaS PDIKeXSSaGHeaIIXKeO. aGO at 4

p.m., the HoDIXeIP AIoDJht the SetteIP that theemAaPPXeP ReIe PeGOXGJ oDt that OaF. thePe

ReIe AaHL XG the PtIeam ofHommDGXHatXoGP AF 6:30 p.m. HopXeO mateIXaS RaP haGOeO to theOXIeHtoI

of the HaAXGet, Rho eYHeIpteO XGfoImatXoG of PpeHXaS XGteIePt aGOIoDteO Xt to the pIopeI

aJeGHXeP, aP poSXHe, aImF, oI IaXSRaFaOmXGXPtIatXoG, aGO PeGt the maPP of OXpSomatXH mateIXaS to

the HoDIt. aSS toSO, the teG-maG HaAXGet haGOSeO aG aKeIaJe ofAetReeG 80 aGO 100 SetteIP a

OaF.aPtoGXPhXGJSF, theXI GXmASe fXGJeIP haIOSF eKeI PtDffeO SetteIP XGto theRIoGJ paHLet,

OePpXte the PpeeO RXth RhXHh theF RoILeO. XG oGe of thefeR IeHoIOeO ASDGOeIP, aG XGteIHepteO

SetteI to the ODLe of moOeGa RaPeIIoGeoDPSF Ie-PeaSeO RXth the HSoPeSF PXmXSaI PXJGet of paIma.

RheG theODLe GotXHeO the PDAPtXtDtXoG, he PeGt Xt to paIma RXth the RIF Gote, "GotEDPt

me—FoD too." Aoth PtateP pIotePteO, ADt the KXeGGePe JIeeteO themRXth a ASaGL PtaIe, a

PhIDJ, aGO a ASaGO pIofePPXoG of XJGoIaGHe. OePpXtethXP, the eYXPteGHe of the ASaHL HhamAeI RaP

ReSS LGoRG to the KaIXoDPOeSeJateP to the aDPtIXaG HoDIt, aGO RaP eKeG taHXtSF aHLGoRSeOJeO

AFthe aDPtIXaGP. RheG the AIXtXPh'amAaPPaOoI HompSaXGeO hDmoIoDPSF that he RaP JettXGJ

HopXePXGPteaO of hXP oIXJXGaS HoIIePpoGOeGHe, the HhaGHeSSoI IepSXeO HooSSF,"hoR HSDmPF thePe

peopSe aIe!"eGHXpheIeO HoIIePpoGOeGHe RaP PDAEeHteO to the DPDaS HIFptaGaSFtXHPReatXGJ

pIoHePP. the KXeGGePe eGEoFeO IemaILaASe PDHHePP XG thXP RoIL.the fIeGHh amAaPPaOoI, Rho RaP

appIXPeO of XtP PDHHePPeP fIom papeIPPoSO hXm AF a maPLeO maG oG a AIXOJe, IemaILeO XG aPtoGXPhmeGt

that"oDI HXpheIP of 1200 [JIoDpP] hoSO oDt oGSF a SXttSe RhXSe aJaXGPt theaAXSXtF of the

aDPtIXaG OeHXpheIeIP." he aOOeO that thoDJh he PDJJePteOGeR RaFP of HXpheIXGJ aGO HoGtXGDaS

HhaGJeP of HXpheIP, "X PtXSS fXGOmFPeSf RXthoDt PeHDIe meaGP foI the PeHIetP X haKe to

tIaGPmXt toHoGPtaGtXGopSe, PtoHLhoSm, aGO Pt. peteIPADIJ."`

\* => Xf a SetteI = if a setteI

it IaG Rith aSmoPt DGAeSieKaASe effiHieGHF. the AaJP of maiS foI OeSiKeIFthat moIGiGJ to the

emAaPPieP iG KieGGa ReIe AIoDJht to the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP ReIe

opeGeO AF meStiGJtheiI PeaSP Rith a HaGOSe. the oIOeI of the SetteIP iG aG eGKeSope RaPGoteO

aGO the SetteIP JiKeG to a PDAOiIeHtoI. he IeaO them aGO oIOeIeOthe impoItaGt paItP HopieO.

aSS the empSoFeeP HoDSO RIite IapiOSF, aGOPome LGeR PhoIthaGO. SoGJ SetteIP ReIe OiHtateO to

PaKe time,PometimeP DPiGJ foDI PteGoJIapheIP to a PiGJSe SetteI. if a SetteI RaP iG aSaGJDaJe

that he OiO Got LGoR, the PDAOiIeHtoI JaKe it to a HaAiGetempSoFee famiSiaI Rith it. tRo

tIaGPSatoIP ReIe aSRaFP oG haGO. aSSeDIopeaG SaGJDaJeP HoDSO Ae IeaO, aGO RheG a GeR oGe RaP GeeOeO,

aGoffiHiaS SeaIGeO it. aImeGiaG, foI eYampSe, tooL oGe HaAiGet poSFJSot oGSFa feR moGthP to SeaIG,

aGO he RaP paiO the DPDaS 500 fSoIiGP foI hiP GeRLGoRSeOJe. afteI HopFiGJ, the SetteIP ReIe

IepSaHeO iG theiI eGKeSopeP iGtheiI oIiJiGaS oIOeI aGO the eGKeSopeP Ie-PeaSeO, DPiGJ foIJeO

PeaSP toimpIePP the oIiJiGaS RaY. the SetteIP ReIe IetDIGeO to the poPt offiHe AF9:30 a.m.at

10 a.m., the maiS that RaP paPPiGJ thIoDJh thiP HIoPPIoaOP of theHoGtiGeGt aIIiKeO aGO RaP

haGOSeO iG the Pame RaF, thoDJh Rith SePPhDIIF AeHaDPe it RaP iG tIaGPit. DPDaSSF it RoDSO Ae

AaHL iG the poPt AF 2p.m., thoDJh PometimeP it RaP Lept aP Sate aP 7 p.m. at 11

a.m.,iGteIHeptioGP maOe AF the poSiHe foI pDIpoPeP of poSitiHaS PDIKeiSSaGHeaIIiKeO. aGO at 4

p.m., the HoDIieIP AIoDJht the SetteIP that theemAaPPieP ReIe PeGOiGJ oDt that OaF. thePe

ReIe AaHL iG the PtIeam ofHommDGiHatioGP AF 6:30 p.m. HopieO mateIiaS RaP haGOeO to theOiIeHtoI

of the HaAiGet, Rho eYHeIpteO iGfoImatioG of PpeHiaS iGteIePt aGOIoDteO it to the pIopeI

aJeGHieP, aP poSiHe, aImF, oI IaiSRaFaOmiGiPtIatioG, aGO PeGt the maPP of OipSomatiH mateIiaS to

the HoDIt. aSS toSO, the teG-maG HaAiGet haGOSeO aG aKeIaJe ofAetReeG 80 aGO 100 SetteIP a

OaF.aPtoGiPhiGJSF, theiI GimASe fiGJeIP haIOSF eKeI PtDffeO SetteIP iGto theRIoGJ paHLet,

OePpite the PpeeO Rith RhiHh theF RoILeO. iG oGe of thefeR IeHoIOeO ASDGOeIP, aG iGteIHepteO

SetteI to the ODLe of moOeGa RaPeIIoGeoDPSF Ie-PeaSeO Rith the HSoPeSF PimiSaI PiJGet of paIma.

RheG theODLe GotiHeO the PDAPtitDtioG, he PeGt it to paIma Rith the RIF Gote, "GotEDPt

me—FoD too." Aoth PtateP pIotePteO, ADt the KieGGePe JIeeteO themRith a ASaGL PtaIe, a

PhIDJ, aGO a ASaGO pIofePPioG of iJGoIaGHe. OePpitethiP, the eYiPteGHe of the ASaHL HhamAeI RaP

ReSS LGoRG to the KaIioDPOeSeJateP to the aDPtIiaG HoDIt, aGO RaP eKeG taHitSF aHLGoRSeOJeO

AFthe aDPtIiaGP. RheG the AIitiPh'amAaPPaOoI HompSaiGeO hDmoIoDPSF that he RaP JettiGJ

HopiePiGPteaO of hiP oIiJiGaS HoIIePpoGOeGHe, the HhaGHeSSoI IepSieO HooSSF,"hoR HSDmPF thePe

peopSe aIe!"eGHipheIeO HoIIePpoGOeGHe RaP PDAEeHteO to the DPDaS HIFptaGaSFtiHPReatiGJ

pIoHePP. the KieGGePe eGEoFeO IemaILaASe PDHHePP iG thiP RoIL.the fIeGHh amAaPPaOoI, Rho RaP

appIiPeO of itP PDHHePPeP fIom papeIPPoSO him AF a maPLeO maG oG a AIiOJe, IemaILeO iG aPtoGiPhmeGt

that"oDI HipheIP of 1200 [JIoDpP] hoSO oDt oGSF a SittSe RhiSe aJaiGPt theaAiSitF of the

aDPtIiaG OeHipheIeIP." he aOOeO that thoDJh he PDJJePteOGeR RaFP of HipheIiGJ aGO HoGtiGDaS

HhaGJeP of HipheIP, "i PtiSS fiGOmFPeSf RithoDt PeHDIe meaGP foI the PeHIetP i haKe to

tIaGPmit toHoGPtaGtiGopSe, PtoHLhoSm, aGO Pt. peteIPADIJ."

\* => iG aG = is as

it Ias Rith aSmoPt DsAeSieKaASe effiHiesHF. the AaJP of maiS foI OeSiKeIFthat moIsisJ to the

emAaPPieP is Kiessa ReIe AIoDJht to the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP ReIe

opeseO AF meStisJtheiI PeaSP Rith a HasOSe. the oIOeI of the SetteIP is as esKeSope RaPsoteO

asO the SetteIP JiKes to a PDAOiIeHtoI. he IeaO them asO oIOeIeOthe impoItast paItP HopieO.

aSS the empSoFeeP HoDSO RIite IapiOSF, asOPome LseR PhoIthasO. SosJ SetteIP ReIe OiHtateO to

PaKe time,PometimeP DPisJ foDI PtesoJIapheIP to a PisJSe SetteI. if a SetteI RaP is aSasJDaJe

that he OiO sot LsoR, the PDAOiIeHtoI JaKe it to a HaAisetempSoFee famiSiaI Rith it. tRo

tIasPSatoIP ReIe aSRaFP os hasO. aSSeDIopeas SasJDaJeP HoDSO Ae IeaO, asO Rhes a seR ose RaP seeOeO,

asoffiHiaS SeaIseO it. aImesias, foI eYampSe, tooL ose HaAiset poSFJSot osSFa feR mosthP to SeaIs,

asO he RaP paiO the DPDaS 500 fSoIisP foI hiP seRLsoRSeOJe. afteI HopFisJ, the SetteIP ReIe

IepSaHeO is theiI esKeSopeP istheiI oIiJisaS oIOeI asO the esKeSopeP Ie-PeaSeO, DPisJ foIJeO

PeaSP toimpIePP the oIiJisaS RaY. the SetteIP ReIe IetDIseO to the poPt offiHe AF9:30 a.m.at

10 a.m., the maiS that RaP paPPisJ thIoDJh thiP HIoPPIoaOP of theHostisest aIIiKeO asO RaP

hasOSeO is the Pame RaF, thoDJh Rith SePPhDIIF AeHaDPe it RaP is tIasPit. DPDaSSF it RoDSO Ae

AaHL is the poPt AF 2p.m., thoDJh PometimeP it RaP Lept aP Sate aP 7 p.m. at 11

a.m.,isteIHeptiosP maOe AF the poSiHe foI pDIpoPeP of poSitiHaS PDIKeiSSasHeaIIiKeO. asO at 4

p.m., the HoDIieIP AIoDJht the SetteIP that theemAaPPieP ReIe PesOisJ oDt that OaF. thePe

ReIe AaHL is the PtIeam ofHommDsiHatiosP AF 6:30 p.m. HopieO mateIiaS RaP hasOeO to theOiIeHtoI

of the HaAiset, Rho eYHeIpteO isfoImatios of PpeHiaS isteIePt asOIoDteO it to the pIopeI

aJesHieP, aP poSiHe, aImF, oI IaiSRaFaOmisiPtIatios, asO Pest the maPP of OipSomatiH mateIiaS to

the HoDIt. aSS toSO, the tes-mas HaAiset hasOSeO as aKeIaJe ofAetRees 80 asO 100 SetteIP a

OaF.aPtosiPhisJSF, theiI simASe fisJeIP haIOSF eKeI PtDffeO SetteIP isto theRIosJ paHLet,

OePpite the PpeeO Rith RhiHh theF RoILeO. is ose of thefeR IeHoIOeO ASDsOeIP, as isteIHepteO

SetteI to the ODLe of moOesa RaPeIIoseoDPSF Ie-PeaSeO Rith the HSoPeSF PimiSaI PiJset of paIma.

Rhes theODLe sotiHeO the PDAPtitDtios, he Pest it to paIma Rith the RIF sote, "sotEDPt

me—FoD too." Aoth PtateP pIotePteO, ADt the KiessePe JIeeteO themRith a ASasL PtaIe, a

PhIDJ, asO a ASasO pIofePPios of iJsoIasHe. OePpitethiP, the eYiPtesHe of the ASaHL HhamAeI RaP

ReSS LsoRs to the KaIioDPOeSeJateP to the aDPtIias HoDIt, asO RaP eKes taHitSF aHLsoRSeOJeO

AFthe aDPtIiasP. Rhes the AIitiPh'amAaPPaOoI HompSaiseO hDmoIoDPSF that he RaP JettisJ

HopiePisPteaO of hiP oIiJisaS HoIIePposOesHe, the HhasHeSSoI IepSieO HooSSF,"hoR HSDmPF thePe

peopSe aIe!"esHipheIeO HoIIePposOesHe RaP PDAEeHteO to the DPDaS HIFptasaSFtiHPReatisJ

pIoHePP. the KiessePe esEoFeO IemaILaASe PDHHePP is thiP RoIL.the fIesHh amAaPPaOoI, Rho RaP

appIiPeO of itP PDHHePPeP fIom papeIPPoSO him AF a maPLeO mas os a AIiOJe, IemaILeO is aPtosiPhmest

that"oDI HipheIP of 1200 [JIoDpP] hoSO oDt osSF a SittSe RhiSe aJaisPt theaAiSitF of the

aDPtIias OeHipheIeIP." he aOOeO that thoDJh he PDJJePteOseR RaFP of HipheIisJ asO HostisDaS

HhasJeP of HipheIP, "i PtiSS fisOmFPeSf RithoDt PeHDIe measP foI the PeHIetP i haKe to

tIasPmit toHosPtastisopSe, PtoHLhoSm, asO Pt. peteIPADIJ."

\* => Rith = with

\* => tRo = two

it Ias with aSmoPt DsAeSieKaASe effiHiesHF. the AaJP of maiS foI OeSiKeIFthat moIsisJ to the

emAaPPieP is Kiessa weIe AIoDJht to the ASaHLHhamAeI eaHh OaF at 7 a.m. theIe the SetteIP weIe

opeseO AF meStisJtheiI PeaSP with a HasOSe. the oIOeI of the SetteIP is as esKeSope waPsoteO

asO the SetteIP JiKes to a PDAOiIeHtoI. he IeaO them asO oIOeIeOthe impoItast paItP HopieO.

aSS the empSoFeeP HoDSO wIite IapiOSF, asOPome Lsew PhoIthasO. SosJ SetteIP weIe OiHtateO to

PaKe time,PometimeP DPisJ foDI PtesoJIapheIP to a PisJSe SetteI. if a SetteI waP is aSasJDaJe

that he OiO sot Lsow, the PDAOiIeHtoI JaKe it to a HaAisetempSoFee famiSiaI with it. two

tIasPSatoIP weIe aSwaFP os hasO. aSSeDIopeas SasJDaJeP HoDSO Ae IeaO, asO whes a sew ose waP seeOeO,

asoffiHiaS SeaIseO it. aImesias, foI eYampSe, tooL ose HaAiset poSFJSot osSFa few mosthP to SeaIs,

asO he waP paiO the DPDaS 500 fSoIisP foI hiP sewLsowSeOJe. afteI HopFisJ, the SetteIP weIe

IepSaHeO is theiI esKeSopeP istheiI oIiJisaS oIOeI asO the esKeSopeP Ie-PeaSeO, DPisJ foIJeO

PeaSP toimpIePP the oIiJisaS waY. the SetteIP weIe IetDIseO to the poPt offiHe AF9:30 a.m.at

10 a.m., the maiS that waP paPPisJ thIoDJh thiP HIoPPIoaOP of theHostisest aIIiKeO asO waP

hasOSeO is the Pame waF, thoDJh with SePPhDIIF AeHaDPe it waP is tIasPit. DPDaSSF it woDSO Ae

AaHL is the poPt AF 2p.m., thoDJh PometimeP it waP Lept aP Sate aP 7 p.m. at 11

a.m.,isteIHeptiosP maOe AF the poSiHe foI pDIpoPeP of poSitiHaS PDIKeiSSasHeaIIiKeO. asO at 4

p.m., the HoDIieIP AIoDJht the SetteIP that theemAaPPieP weIe PesOisJ oDt that OaF. thePe

weIe AaHL is the PtIeam ofHommDsiHatiosP AF 6:30 p.m. HopieO mateIiaS waP hasOeO to theOiIeHtoI

of the HaAiset, who eYHeIpteO isfoImatios of PpeHiaS isteIePt asOIoDteO it to the pIopeI

aJesHieP, aP poSiHe, aImF, oI IaiSwaFaOmisiPtIatios, asO Pest the maPP of OipSomatiH mateIiaS to

the HoDIt. aSS toSO, the tes-mas HaAiset hasOSeO as aKeIaJe ofAetwees 80 asO 100 SetteIP a

OaF.aPtosiPhisJSF, theiI simASe fisJeIP haIOSF eKeI PtDffeO SetteIP isto thewIosJ paHLet,

OePpite the PpeeO with whiHh theF woILeO. is ose of thefew IeHoIOeO ASDsOeIP, as isteIHepteO

SetteI to the ODLe of moOesa waPeIIoseoDPSF Ie-PeaSeO with the HSoPeSF PimiSaI PiJset of paIma.

whes theODLe sotiHeO the PDAPtitDtios, he Pest it to paIma with the wIF sote, "sotEDPt

me—FoD too." Aoth PtateP pIotePteO, ADt the KiessePe JIeeteO themwith a ASasL PtaIe, a

PhIDJ, asO a ASasO pIofePPios of iJsoIasHe. OePpitethiP, the eYiPtesHe of the ASaHL HhamAeI waP

weSS Lsows to the KaIioDPOeSeJateP to the aDPtIias HoDIt, asO waP eKes taHitSF aHLsowSeOJeO

AFthe aDPtIiasP. whes the AIitiPh'amAaPPaOoI HompSaiseO hDmoIoDPSF that he waP JettisJ

HopiePisPteaO of hiP oIiJisaS HoIIePposOesHe, the HhasHeSSoI IepSieO HooSSF,"how HSDmPF thePe

peopSe aIe!"esHipheIeO HoIIePposOesHe waP PDAEeHteO to the DPDaS HIFptasaSFtiHPweatisJ

pIoHePP. the KiessePe esEoFeO IemaILaASe PDHHePP is thiP woIL.the fIesHh amAaPPaOoI, who waP

appIiPeO of itP PDHHePPeP fIom papeIPPoSO him AF a maPLeO mas os a AIiOJe, IemaILeO is aPtosiPhmest

that"oDI HipheIP of 1200 [JIoDpP] hoSO oDt osSF a SittSe whiSe aJaisPt theaAiSitF of the

aDPtIias OeHipheIeIP." he aOOeO that thoDJh he PDJJePteOsew waFP of HipheIisJ asO HostisDaS

HhasJeP of HipheIP, "i PtiSS fisOmFPeSf withoDt PeHDIe measP foI the PeHIetP i haKe to

tIasPmit toHosPtastisopSe, PtoHLhoSm, asO Pt. peteIPADIJ."

\* => weIe = were

bash

it ras with aSmoPt DsAeSieKaASe effiHiesHF. the AaJP of maiS for OeSiKerFthat morsisJ to the

emAaPPieP is Kiessa were AroDJht to the ASaHLHhamAer eaHh OaF at 7 a.m. there the SetterP were

opeseO AF meStisJtheir PeaSP with a HasOSe. the orOer of the SetterP is as esKeSope waPsoteO

asO the SetterP JiKes to a PDAOireHtor. he reaO them asO orOereOthe importast partP HopieO.

aSS the empSoFeeP HoDSO write rapiOSF, asOPome Lsew PhorthasO. SosJ SetterP were OiHtateO to

PaKe time,PometimeP DPisJ foDr PtesoJrapherP to a PisJSe Setter. if a Setter waP is aSasJDaJe

that he OiO sot Lsow, the PDAOireHtor JaKe it to a HaAisetempSoFee famiSiar with it. two

trasPSatorP were aSwaFP os hasO. aSSeDropeas SasJDaJeP HoDSO Ae reaO, asO whes a sew ose waP seeOeO,

asoffiHiaS SearseO it. armesias, for eYampSe, tooL ose HaAiset poSFJSot osSFa few mosthP to Sears,

asO he waP paiO the DPDaS 500 fSorisP for hiP sewLsowSeOJe. after HopFisJ, the SetterP were

repSaHeO is their esKeSopeP istheir oriJisaS orOer asO the esKeSopeP re-PeaSeO, DPisJ forJeO

PeaSP toimprePP the oriJisaS waY. the SetterP were retDrseO to the poPt offiHe AF9:30 a.m.at

10 a.m., the maiS that waP paPPisJ throDJh thiP HroPProaOP of theHostisest arriKeO asO waP

hasOSeO is the Pame waF, thoDJh with SePPhDrrF AeHaDPe it waP is trasPit. DPDaSSF it woDSO Ae

AaHL is the poPt AF 2p.m., thoDJh PometimeP it waP Lept aP Sate aP 7 p.m. at 11

a.m.,isterHeptiosP maOe AF the poSiHe for pDrpoPeP of poSitiHaS PDrKeiSSasHearriKeO. asO at 4

p.m., the HoDrierP AroDJht the SetterP that theemAaPPieP were PesOisJ oDt that OaF. thePe

were AaHL is the Ptream ofHommDsiHatiosP AF 6:30 p.m. HopieO materiaS waP hasOeO to theOireHtor

of the HaAiset, who eYHerpteO isformatios of PpeHiaS isterePt asOroDteO it to the proper

aJesHieP, aP poSiHe, armF, or raiSwaFaOmisiPtratios, asO Pest the maPP of OipSomatiH materiaS to

the HoDrt. aSS toSO, the tes-mas HaAiset hasOSeO as aKeraJe ofAetwees 80 asO 100 SetterP a

OaF.aPtosiPhisJSF, their simASe fisJerP harOSF eKer PtDffeO SetterP isto thewrosJ paHLet,

OePpite the PpeeO with whiHh theF worLeO. is ose of thefew reHorOeO ASDsOerP, as isterHepteO

Setter to the ODLe of moOesa waPerroseoDPSF re-PeaSeO with the HSoPeSF PimiSar PiJset of parma.

whes theODLe sotiHeO the PDAPtitDtios, he Pest it to parma with the wrF sote, "sotEDPt

me—FoD too." Aoth PtateP protePteO, ADt the KiessePe JreeteO themwith a ASasL Ptare, a

PhrDJ, asO a ASasO profePPios of iJsorasHe. OePpitethiP, the eYiPtesHe of the ASaHL HhamAer waP

weSS Lsows to the KarioDPOeSeJateP to the aDPtrias HoDrt, asO waP eKes taHitSF aHLsowSeOJeO

AFthe aDPtriasP. whes the AritiPh'amAaPPaOor HompSaiseO hDmoroDPSF that he waP JettisJ

HopiePisPteaO of hiP oriJisaS HorrePposOesHe, the HhasHeSSor repSieO HooSSF,"how HSDmPF thePe

peopSe are!"esHiphereO HorrePposOesHe waP PDAEeHteO to the DPDaS HrFptasaSFtiHPweatisJ

proHePP. the KiessePe esEoFeO remarLaASe PDHHePP is thiP worL.the fresHh amAaPPaOor, who waP

appriPeO of itP PDHHePPeP from paperPPoSO him AF a maPLeO mas os a AriOJe, remarLeO is aPtosiPhmest

that"oDr HipherP of 1200 [JroDpP] hoSO oDt osSF a SittSe whiSe aJaisPt theaAiSitF of the

aDPtrias OeHiphererP." he aOOeO that thoDJh he PDJJePteOsew waFP of HipherisJ asO HostisDaS

HhasJeP of HipherP, "i PtiSS fisOmFPeSf withoDt PeHDre measP for the PeHretP i haKe to

trasPmit toHosPtastisopSe, PtoHLhoSm, asO Pt. peterPADrJ."

\* => orOer=order

\* => OiO = did

it raG with aSmoPt DGAeSieKaASe effiHieGHF. the AaJP of maiS for deSiKerFthat morGiGJ to the

emAaPPieP iG KieGGa were AroDJht to the ASaHLHhamAer eaHh daF at 7 a.m. there the SetterP were

opeGed AF meStiGJtheir PeaSP with a HaGdSe. the order of the SetterP iG aG eGKeSope waPGoted

aGd the SetterP JiKeG to a PDAdireHtor. he read them aGd orderedthe importaGt partP Hopied.

aSS the empSoFeeP HoDSd write rapidSF, aGdPome LGew PhorthaGd. SoGJ SetterP were diHtated to

PaKe time,PometimeP DPiGJ foDr PteGoJrapherP to a PiGJSe Setter. if a Setter waP iG aSaGJDaJe

that he did Got LGow, the PDAdireHtor JaKe it to a HaAiGetempSoFee famiSiar with it. two

traGPSatorP were aSwaFP oG haGd. aSSeDropeaG SaGJDaJeP HoDSd Ae read, aGd wheG a Gew oGe waP Geeded,

aGoffiHiaS SearGed it. armeGiaG, for eYampSe, tooL oGe HaAiGet poSFJSot oGSFa few moGthP to SearG,

aGd he waP paid the DPDaS 500 fSoriGP for hiP GewLGowSedJe. after HopFiGJ, the SetterP were

repSaHed iG their eGKeSopeP iGtheir oriJiGaS order aGd the eGKeSopeP re-PeaSed, DPiGJ forJed

PeaSP toimprePP the oriJiGaS waY. the SetterP were retDrGed to the poPt offiHe AF9:30 a.m.at

10 a.m., the maiS that waP paPPiGJ throDJh thiP HroPProadP of theHoGtiGeGt arriKed aGd waP

haGdSed iG the Pame waF, thoDJh with SePPhDrrF AeHaDPe it waP iG traGPit. DPDaSSF it woDSd Ae

AaHL iG the poPt AF 2p.m., thoDJh PometimeP it waP Lept aP Sate aP 7 p.m. at 11

a.m.,iGterHeptioGP made AF the poSiHe for pDrpoPeP of poSitiHaS PDrKeiSSaGHearriKed. aGd at 4

p.m., the HoDrierP AroDJht the SetterP that theemAaPPieP were PeGdiGJ oDt that daF. thePe

were AaHL iG the Ptream ofHommDGiHatioGP AF 6:30 p.m. Hopied materiaS waP haGded to thedireHtor

of the HaAiGet, who eYHerpted iGformatioG of PpeHiaS iGterePt aGdroDted it to the proper

aJeGHieP, aP poSiHe, armF, or raiSwaFadmiGiPtratioG, aGd PeGt the maPP of dipSomatiH materiaS to

the HoDrt. aSS toSd, the teG-maG HaAiGet haGdSed aG aKeraJe ofAetweeG 80 aGd 100 SetterP a

daF.aPtoGiPhiGJSF, their GimASe fiGJerP hardSF eKer PtDffed SetterP iGto thewroGJ paHLet,

dePpite the Ppeed with whiHh theF worLed. iG oGe of thefew reHorded ASDGderP, aG iGterHepted

Setter to the dDLe of modeGa waPerroGeoDPSF re-PeaSed with the HSoPeSF PimiSar PiJGet of parma.

wheG thedDLe GotiHed the PDAPtitDtioG, he PeGt it to parma with the wrF Gote, "GotEDPt

me—FoD too." Aoth PtateP protePted, ADt the KieGGePe Jreeted themwith a ASaGL Ptare, a

PhrDJ, aGd a ASaGd profePPioG of iJGoraGHe. dePpitethiP, the eYiPteGHe of the ASaHL HhamAer waP

weSS LGowG to the KarioDPdeSeJateP to the aDPtriaG HoDrt, aGd waP eKeG taHitSF aHLGowSedJed

AFthe aDPtriaGP. wheG the AritiPh'amAaPPador HompSaiGed hDmoroDPSF that he waP JettiGJ

HopiePiGPtead of hiP oriJiGaS HorrePpoGdeGHe, the HhaGHeSSor repSied HooSSF,"how HSDmPF thePe

peopSe are!"eGHiphered HorrePpoGdeGHe waP PDAEeHted to the DPDaS HrFptaGaSFtiHPweatiGJ

proHePP. the KieGGePe eGEoFed remarLaASe PDHHePP iG thiP worL.the freGHh amAaPPador, who waP

appriPed of itP PDHHePPeP from paperPPoSd him AF a maPLed maG oG a AridJe, remarLed iG aPtoGiPhmeGt

that"oDr HipherP of 1200 [JroDpP] hoSd oDt oGSF a SittSe whiSe aJaiGPt theaAiSitF of the

aDPtriaG deHiphererP." he added that thoDJh he PDJJePtedGew waFP of HipheriGJ aGd HoGtiGDaS

HhaGJeP of HipherP, "i PtiSS fiGdmFPeSf withoDt PeHDre meaGP for the PeHretP i haKe to

traGPmit toHoGPtaGtiGopSe, PtoHLhoSm, aGd Pt. peterPADrJ."

\* => substitute instead of g=s, p=s

it raG with aSmost DGAeSieKaASe effiHieGHF. the AaJs of maiS for deSiKerFthat morGiGJ to the

emAassies iG KieGGa were AroDJht to the ASaHLHhamAer eaHh daF at 7 a.m. there the Setters were

opeGed AF meStiGJtheir seaSs with a HaGdSe. the order of the Setters iG aG eGKeSope wasGoted

aGd the Setters JiKeG to a sDAdireHtor. he read them aGd orderedthe importaGt parts Hopied.

aSS the empSoFees HoDSd write rapidSF, aGdsome LGew shorthaGd. SoGJ Setters were diHtated to

saKe time,sometimes DsiGJ foDr steGoJraphers to a siGJSe Setter. if a Setter was iG aSaGJDaJe

that he did Got LGow, the sDAdireHtor JaKe it to a HaAiGetempSoFee famiSiar with it. two

traGsSators were aSwaFs oG haGd. aSSeDropeaG SaGJDaJes HoDSd Ae read, aGd wheG a Gew oGe was Geeded,

aGoffiHiaS SearGed it. armeGiaG, for eYampSe, tooL oGe HaAiGet poSFJSot oGSFa few moGths to SearG,

aGd he was paid the DsDaS 500 fSoriGs for his GewLGowSedJe. after HopFiGJ, the Setters were

repSaHed iG their eGKeSopes iGtheir oriJiGaS order aGd the eGKeSopes re-seaSed, DsiGJ forJed

seaSs toimpress the oriJiGaS waY. the Setters were retDrGed to the post offiHe AF9:30 a.m.at

10 a.m., the maiS that was passiGJ throDJh this Hrossroads of theHoGtiGeGt arriKed aGd was

haGdSed iG the same waF, thoDJh with SesshDrrF AeHaDse it was iG traGsit. DsDaSSF it woDSd Ae

AaHL iG the post AF 2p.m., thoDJh sometimes it was Lept as Sate as 7 p.m. at 11

a.m.,iGterHeptioGs made AF the poSiHe for pDrposes of poSitiHaS sDrKeiSSaGHearriKed. aGd at 4

p.m., the HoDriers AroDJht the Setters that theemAassies were seGdiGJ oDt that daF. these

were AaHL iG the stream ofHommDGiHatioGs AF 6:30 p.m. Hopied materiaS was haGded to thedireHtor

of the HaAiGet, who eYHerpted iGformatioG of speHiaS iGterest aGdroDted it to the proper

aJeGHies, as poSiHe, armF, or raiSwaFadmiGistratioG, aGd seGt the mass of dipSomatiH materiaS to

the HoDrt. aSS toSd, the teG-maG HaAiGet haGdSed aG aKeraJe ofAetweeG 80 aGd 100 Setters a

daF.astoGishiGJSF, their GimASe fiGJers hardSF eKer stDffed Setters iGto thewroGJ paHLet,

despite the speed with whiHh theF worLed. iG oGe of thefew reHorded ASDGders, aG iGterHepted

Setter to the dDLe of modeGa waserroGeoDsSF re-seaSed with the HSoseSF simiSar siJGet of parma.

wheG thedDLe GotiHed the sDAstitDtioG, he seGt it to parma with the wrF Gote, "GotEDst

me—FoD too." Aoth states protested, ADt the KieGGese Jreeted themwith a ASaGL stare, a

shrDJ, aGd a ASaGd professioG of iJGoraGHe. despitethis, the eYisteGHe of the ASaHL HhamAer was

weSS LGowG to the KarioDsdeSeJates to the aDstriaG HoDrt, aGd was eKeG taHitSF aHLGowSedJed

AFthe aDstriaGs. wheG the Aritish'amAassador HompSaiGed hDmoroDsSF that he was JettiGJ

HopiesiGstead of his oriJiGaS HorrespoGdeGHe, the HhaGHeSSor repSied HooSSF,"how HSDmsF these

peopSe are!"eGHiphered HorrespoGdeGHe was sDAEeHted to the DsDaS HrFptaGaSFtiHsweatiGJ

proHess. the KieGGese eGEoFed remarLaASe sDHHess iG this worL.the freGHh amAassador, who was

apprised of its sDHHesses from paperssoSd him AF a masLed maG oG a AridJe, remarLed iG astoGishmeGt

that"oDr Hiphers of 1200 [JroDps] hoSd oDt oGSF a SittSe whiSe aJaiGst theaAiSitF of the

aDstriaG deHipherers." he added that thoDJh he sDJJestedGew waFs of HipheriGJ aGd HoGtiGDaS

HhaGJes of Hiphers, "i stiSS fiGdmFseSf withoDt seHDre meaGs for the seHrets i haKe to

traGsmit toHoGstaGtiGopSe, stoHLhoSm, aGd st. petersADrJ.

\* => wheG = when

\* => moGths = months

it ran with aSmost DnAeSieKaASe effiHienHF. the AaJs of maiS for deSiKerFthat morninJ to the

emAassies in Kienna were AroDJht to the ASaHLHhamAer eaHh daF at 7 a.m. there the Setters were

opened AF meStinJtheir seaSs with a HandSe. the order of the Setters in an enKeSope wasnoted

and the Setters JiKen to a sDAdireHtor. he read them and orderedthe important parts Hopied.

aSS the empSoFees HoDSd write rapidSF, andsome Lnew shorthand. SonJ Setters were diHtated to

saKe time,sometimes DsinJ foDr stenoJraphers to a sinJSe Setter. if a Setter was in aSanJDaJe

that he did not Lnow, the sDAdireHtor JaKe it to a HaAinetempSoFee famiSiar with it. two

transSators were aSwaFs on hand. aSSeDropean SanJDaJes HoDSd Ae read, and when a new one was needed,

anoffiHiaS Searned it. armenian, for eYampSe, tooL one HaAinet poSFJSot onSFa few months to Searn,

and he was paid the DsDaS 500 fSorins for his newLnowSedJe. after HopFinJ, the Setters were

repSaHed in their enKeSopes intheir oriJinaS order and the enKeSopes re-seaSed, DsinJ forJed

seaSs toimpress the oriJinaS waY. the Setters were retDrned to the post offiHe AF9:30 a.m.at

10 a.m., the maiS that was passinJ throDJh this Hrossroads of theHontinent arriKed and was

handSed in the same waF, thoDJh with SesshDrrF AeHaDse it was in transit. DsDaSSF it woDSd Ae

AaHL in the post AF 2p.m., thoDJh sometimes it was Lept as Sate as 7 p.m. at 11

a.m.,interHeptions made AF the poSiHe for pDrposes of poSitiHaS sDrKeiSSanHearriKed. and at 4

p.m., the HoDriers AroDJht the Setters that theemAassies were sendinJ oDt that daF. these

were AaHL in the stream ofHommDniHations AF 6:30 p.m. Hopied materiaS was handed to thedireHtor

of the HaAinet, who eYHerpted information of speHiaS interest androDted it to the proper

aJenHies, as poSiHe, armF, or raiSwaFadministration, and sent the mass of dipSomatiH materiaS to

the HoDrt. aSS toSd, the ten-man HaAinet handSed an aKeraJe ofAetween 80 and 100 Setters a

daF.astonishinJSF, their nimASe finJers hardSF eKer stDffed Setters into thewronJ paHLet,

despite the speed with whiHh theF worLed. in one of thefew reHorded ASDnders, an interHepted

Setter to the dDLe of modena waserroneoDsSF re-seaSed with the HSoseSF simiSar siJnet of parma.

when thedDLe notiHed the sDAstitDtion, he sent it to parma with the wrF note, "notEDst

me—FoD too." Aoth states protested, ADt the Kiennese Jreeted themwith a ASanL stare, a

shrDJ, and a ASand profession of iJnoranHe. despitethis, the eYistenHe of the ASaHL HhamAer was

weSS Lnown to the KarioDsdeSeJates to the aDstrian HoDrt, and was eKen taHitSF aHLnowSedJed

AFthe aDstrians. when the Aritish'amAassador HompSained hDmoroDsSF that he was JettinJ

Hopiesinstead of his oriJinaS HorrespondenHe, the HhanHeSSor repSied HooSSF,"how HSDmsF these

peopSe are!"enHiphered HorrespondenHe was sDAEeHted to the DsDaS HrFptanaSFtiHsweatinJ

proHess. the Kiennese enEoFed remarLaASe sDHHess in this worL.the frenHh amAassador, who was

apprised of its sDHHesses from paperssoSd him AF a masLed man on a AridJe, remarLed in astonishment

that"oDr Hiphers of 1200 [JroDps] hoSd oDt onSF a SittSe whiSe aJainst theaAiSitF of the

aDstrian deHipherers." he added that thoDJh he sDJJestednew waFs of HipherinJ and HontinDaS

HhanJes of Hiphers, "i stiSS findmFseSf withoDt seHDre means for the seHrets i haKe to

transmit toHonstantinopSe, stoHLhoSm, and st. petersADrJ."

\* => famiSiar = familiar

it ran with almost DnAelieKaAle effiHienHF. the AaJs of mail for deliKerFthat morninJ to the

emAassies in Kienna were AroDJht to the AlaHLHhamAer eaHh daF at 7 a.m. there the letters were

opened AF meltinJtheir seals with a Handle. the order of the letters in an enKelope wasnoted

and the letters JiKen to a sDAdireHtor. he read them and orderedthe important parts Hopied.

all the emploFees HoDld write rapidlF, andsome Lnew shorthand. lonJ letters were diHtated to

saKe time,sometimes DsinJ foDr stenoJraphers to a sinJle letter. if a letter was in alanJDaJe

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translators were alwaFs on hand. alleDropean lanJDaJes HoDld Ae read, and when a new one was needed,

anoffiHial learned it. armenian, for eYample, tooL one HaAinet polFJlot onlFa few months to learn,

and he was paid the DsDal 500 florins for his newLnowledJe. after HopFinJ, the letters were

replaHed in their enKelopes intheir oriJinal order and the enKelopes re-sealed, DsinJ forJed

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handled in the same waF, thoDJh with lesshDrrF AeHaDse it was in transit. DsDallF it woDld Ae

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aJenHies, as poliHe, armF, or railwaFadministration, and sent the mass of diplomatiH material to

the HoDrt. all told, the ten-man HaAinet handled an aKeraJe ofAetween 80 and 100 letters a

daF.astonishinJlF, their nimAle finJers hardlF eKer stDffed letters into thewronJ paHLet,

despite the speed with whiHh theF worLed. in one of thefew reHorded AlDnders, an interHepted

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HhanJes of Hiphers, "i still findmFself withoDt seHDre means for the seHrets i haKe to

transmit toHonstantinople, stoHLholm, and st. petersADrJ."

\* => alwaFs = always

\* => daF=day

it ran with almost DnAelieKaAle effiHienHy. the AaJs of mail for deliKerythat morninJ to the

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HhanJes of Hiphers, "i still findmyself withoDt seHDre means for the seHrets i haKe to

transmit toHonstantinople, stoHLholm, and st. petersADrJ."

\* => oriJinal = original

\* => forJed = forged

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Hhanges of Hiphers, "i still findmyself withoDt seHDre means for the seHrets i haKe to

transmit toHonstantinople, stoHLholm, and st. petersADrg."

\* => newLnowledge = newknowledge

\* => Lnew=knew

it ran with almost DnAelieKaAle effiHienHy. the Aags of mail for deliKerythat morning to the

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transmit toHonstantinople, stoHkholm, and st. petersADrg."

\* => deliKerythat = deliverythat

\* => Kienna= vienna

it ran with almost DnAelievaAle effiHienHy. the Aags of mail for deliverythat morning to the

emAassies in vienna were AroDght to the AlaHkHhamAer eaHh day at 7 a.m. there the letters were

opened Ay meltingtheir seals with a Handle. the order of the letters in an envelope wasnoted

and the letters given to a sDAdireHtor. he read them and orderedthe important parts Hopied.

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aDstrian deHipherers." he added that thoDgh he sDggestednew ways of Hiphering and HontinDal

Hhanges of Hiphers, "i still findmyself withoDt seHDre means for the seHrets i have to

transmit toHonstantinople, stoHkholm, and st. petersADrg."

\* => Hopied = copied

\* => Handle = candle

it ran with almost DnAelievaAle efficiency. the Aags of mail for deliverythat morning to the

emAassies in vienna were AroDght to the AlackchamAer each day at 7 a.m. there the letters were

opened Ay meltingtheir seals with a candle. the order of the letters in an envelope wasnoted

and the letters given to a sDAdirector. he read them and orderedthe important parts copied.

all the employees coDld write rapidly, andsome knew shorthand. long letters were dictated to

save time,sometimes Dsing foDr stenographers to a single letter. if a letter was in alangDage

that he did not know, the sDAdirector gave it to a caAinetemployee familiar with it. two

translators were always on hand. alleDropean langDages coDld Ae read, and when a new one was needed,

anofficial learned it. armenian, for eYample, took one caAinet polyglot onlya few months to learn,

and he was paid the DsDal 500 florins for his newknowledge. after copying, the letters were

replaced in their envelopes intheir original order and the envelopes re-sealed, Dsing forged

seals toimpress the original waY. the letters were retDrned to the post office Ay9:30 a.m.at

10 a.m., the mail that was passing throDgh this crossroads of thecontinent arrived and was

handled in the same way, thoDgh with lesshDrry AecaDse it was in transit. DsDally it woDld Ae

Aack in the post Ay 2p.m., thoDgh sometimes it was kept as late as 7 p.m. at 11

a.m.,interceptions made Ay the police for pDrposes of political sDrveillancearrived. and at 4

p.m., the coDriers AroDght the letters that theemAassies were sending oDt that day. these

were Aack in the stream ofcommDnications Ay 6:30 p.m. copied material was handed to thedirector

of the caAinet, who eYcerpted information of special interest androDted it to the proper

agencies, as police, army, or railwayadministration, and sent the mass of diplomatic material to

the coDrt. all told, the ten-man caAinet handled an average ofAetween 80 and 100 letters a

day.astonishingly, their nimAle fingers hardly ever stDffed letters into thewrong packet,

despite the speed with which they worked. in one of thefew recorded AlDnders, an intercepted

letter to the dDke of modena waserroneoDsly re-sealed with the closely similar signet of parma.

when thedDke noticed the sDAstitDtion, he sent it to parma with the wry note, "notEDst

me—yoD too." Aoth states protested, ADt the viennese greeted themwith a Alank stare, a

shrDg, and a Aland profession of ignorance. despitethis, the eYistence of the Alack chamAer was

well known to the varioDsdelegates to the aDstrian coDrt, and was even tacitly acknowledged

Aythe aDstrians. when the Aritish'amAassador complained hDmoroDsly that he was getting

copiesinstead of his original correspondence, the chancellor replied coolly,"how clDmsy these

people are!"enciphered correspondence was sDAEected to the DsDal cryptanalyticsweating

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apprised of its sDccesses from paperssold him Ay a masked man on a Aridge, remarked in astonishment

that"oDr ciphers of 1200 [groDps] hold oDt only a little while against theaAility of the

aDstrian decipherers." he added that thoDgh he sDggestednew ways of ciphering and continDal

changes of ciphers, "i still findmyself withoDt secDre means for the secrets i have to

transmit toconstantinople, stockholm, and st. petersADrg."

\* => coDld=could

\* => Dsing=using

it ran with almost unAelievaAle efficiency. the Aags of mail for deliverythat morning to the

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save time,sometimes using four stenographers to a single letter. if a letter was in alanguage

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and he was paid the usual 500 florins for his newknowledge. after copying, the letters were

replaced in their envelopes intheir original order and the envelopes re-sealed, using forged

seals toimpress the original waY. the letters were returned to the post office Ay9:30 a.m.at

10 a.m., the mail that was passing through this crossroads of thecontinent arrived and was

handled in the same way, though with lesshurry Aecause it was in transit. usually it would Ae

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a.m.,interceptions made Ay the police for purposes of political surveillancearrived. and at 4

p.m., the couriers Arought the letters that theemAassies were sending out that day. these

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of the caAinet, who eYcerpted information of special interest androuted it to the proper

agencies, as police, army, or railwayadministration, and sent the mass of diplomatic material to

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despite the speed with which they worked. in one of thefew recorded Alunders, an intercepted

letter to the duke of modena waserroneously re-sealed with the closely similar signet of parma.

when theduke noticed the suAstitution, he sent it to parma with the wry note, "notEust

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shrug, and a Aland profession of ignorance. despitethis, the eYistence of the Alack chamAer was

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austrian decipherers." he added that though he suggestednew ways of ciphering and continual

changes of ciphers, "i still findmyself without secure means for the secrets i have to

transmit toconstantinople, stockholm, and st. petersAurg."

\* => eYample = example

\* => eYistence = existence

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changes of ciphers, "i still findmyself without secure means for the secrets i have to

transmit toconstantinople, stockholm, and st. petersAurg."

\* => Aags=bags

\* => petersAurg=petersburg

it ran with almost unbelievable efficiency. the bags of mail for deliverythat morning to the

embassies in vienna were brought to the blackchamber each day at 7 a.m. there the letters were

opened by meltingtheir seals with a candle. the order of the letters in an envelope wasnoted

and the letters given to a subdirector. he read them and orderedthe important parts copied.

all the employees could write rapidly, andsome knew shorthand. long letters were dictated to

save time,sometimes using four stenographers to a single letter. if a letter was in alanguage

that he did not know, the subdirector gave it to a cabinetemployee familiar with it. two

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\* => subEected=subjected

\* => enEoyed=enjoyed

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